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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,340	10/31/2001	James M. Little	PW 0249736 P12828	5257

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EXAMINER	
WILLIAMS, LAWRENCE B	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,340	LITTLE, JAMES M.	
	Examiner	Art Unit	
	Lawrence B Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3-9,12-18 and 20-30* is/are allowed.

6)☒ Claim(s) *1,2,10,11 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkhout et al. (US Patent 4,736,163) in view of Nagaraj (US Patent 6,041,084).

(1) With regard to claim 1, Berkhout et al. discloses in Fig. 3, an adaptive slicer threshold generation system, comprising; a first moving average filter (11) to determine a first average value of a first binary signal; a second moving average filter (11^1) to determine a second average value of a second binary signal; and a combiner (26) to combine the first average value of the first binary signal and the second average value of the second binary signal to generate a combined output (5) (col. 7, lines 3-23).

However Berkhout et al. does not disclose the first moving average filter to determine a first average value of a first binary signal comprising only binary values of one or the second moving average filter to determine a second average value of a second binary signal comprising only binary values of zero, wherein the second binary signal includes both positive and negative values.

However, Nagaraj discloses in Fig. 4, a positive peak detector (20H) to determine a first average value of a first binary signal comprising only binary values of one and a negative peak detector (20L) to determine a second average value of a second binary signal comprising only binary values of zero (col. 2, lines 51-58), wherein the second binary signal includes both positive and negative values (see Fig. 5E).

Therefore it would have been obvious to one skilled in the art at the time of invention to incorporate the invention of Nagaraj with that of Berkhout et al as a method of providing an improved binary signal slicer circuit (col. 1, line 60 - col. 2, line 7).

(2) With regard to claim 10, claim 10 inherits all limitations of claim 1 above.

(3) With regard to claim 19, claim 19 inherits all limitations of claims 1 and 10 above.

4. Claims 2, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkhout et al. (US Patent 4,736,163) in combination with Nagaraj (US Patent 6,041,084) above and further in view of McNally (US 2002/001354 A1).

(1) With regard to claim 2, Berkhout et al. discloses in Fig. 3, an adaptive slicer threshold generation system, comprising; a first moving average filter (11) to determine a first average value of a first binary signal; a second moving average filter (11^1) to determine a second average value of a second binary signal; and a combiner (26) to combine the first average value of the first binary signal and the second average value of the second binary signal to generate a combined output (5) (col. 7, lines 3-23).

However Berkhout et al. does not disclose the first moving average filter to determine a first average value of a first binary signal comprising only binary values of one or the second moving average filter to determine a second average value of a second binary signal

comprising only binary values of zero, wherein the second binary signal includes both positive and negative values.

However, Nagaraj discloses in Fig. 4, a positive peak detector (20H) to determine a first average value of a first binary signal comprising only binary values of one and a negative peak detector (20L) to determine a second average value of a second binary signal comprising only binary values of zero (col. 2, lines 51-58), wherein the second binary signal includes both positive and negative values (see Fig. 5E).

Therefore it would have been obvious to one skilled in the art at the time of invention to incorporate the invention of Nagaraj with that of Berkhout et al as a method of providing an improved binary signal slicer circuit (col. 1, line 60 - col. 2, line 7).

Neither Berkhout et al. nor Nagaraj teach wherein the adaptive slicer threshold generation system further includes a gain element to set a value of a slicer threshold within a data eye.

However, McNally teaches in Fig. 4, wherein the adaptive slicer threshold generation system further includes a gain element (405, 401) to set a value of a slicer threshold [0039].

Therefore it would have been obvious to one skilled in the art at the time of the invention to incorporate the teachings of McNally with the invention of Berkhout et al. in combination with Nagaraj as a method of designing an accurate slicer that can rapidly adjust to an offset [0002].

Though there is no reference in either of the inventions as to a data eye, one skilled in the art would know that eye patterns (oscilloscope traces of demodulated data signals occurring during transmission) are commonly used I the art.

(2) With regard to claim 11, claim 11 inherits all limitations of claim 2 above.

Allowable Subject Matter

5. Claims 3-9, 12-18, 20-30 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses an adaptive slicer threshold generation system. A search of prior art records has failed to teach a system comprising; "a minimum detector to determine a minimum value of a binary one; a peak detector to determine a minimum value of a binary zero" as disclosed in claims 5-9, 14-18, 21-24, 28-30. Nor does the prior art teach a system comprising; "wherein at least one of the first moving average filter and the second moving average filter includes a leakage element to control an adaptation rate of a slicer threshold" or "a first delay element to delay a received binary signal, a first combiner to combine the received binary signal, a delayed binary signal from the first delay element, and a delayed output signal from a second delay element" as disclose in claims 3, 11, 12 and 4, respectively. The prior art also does not teach a system comprising "wherein at least one of the first moving average filter and the second moving average filter includes a first delay element to delay a received binary signal, a first combiner to combine the received binary signal, a delayed binary signal from the first delay element, and a delayed output signal from a second delay element, and a gain element to manipulate an output signal from the first combiner, the second delay element delaying the output signal that is combined by the first combiner with the received binary signal and the delayed binary signal" as disclosed in claims 13, 20-21 and 25-27.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Uchida discloses in US Patent 5,412,692 a Data Slicer.

b.) Dehghan discloses in US Patent 6,556,635 B1 Communications Receiver Having Adaptive Dynamic Range.

c.) Tults discloses in US Patent 5,371,545 Auxiliary Video Data Slicer With Adjustable window For Detecting The Run In Clock.

d.) Wong discloses in US Patent 4,873,700 Auto-Threshold/Adaptive Equalizer.

e.) Urade et al. discloses in Data Slicing Circuit And Method.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

AMANDA T. LE
PRIMARY EXAMINER

lbw
March 5, 2005